IN THE CLAIMS

Claim 1 (Previously Presented): An apparatus for compensating for characteristics of a laser diode so that the laser diode outputs an optical power at a constant level, the apparatus comprising:

an optical output detector which detects an optical power output from the laser diode and converts the optical power into a voltage;

a bias current controller which detects a maximum level of the voltage and outputs a first control value corresponding to a difference between the maximum level and a first reference voltage, the bias current controller consists of a top holder and an automatic power controller;

a modulation current controller which detects a minimum level of the voltage and outputs a second control value corresponding to a difference between the minimum level and a second reference voltage, the modulation current controller consists of a bottom holder and an automatic modulation controller; and

a laser diode driver which outputs a drive current to the laser diode according to the first and second control values.

Claim 2 (Original): The apparatus of claim 1, wherein the optical output detector comprises:

an optical/electric signal converter which converts the optical power output from the laser diode into a current;

a trans-impedance amplifier which inverts an output of the optical/electric signal converter; and

a resister which is in parallel connected to the trans-impedance amplifier and converts the current into a voltage.

Claim 3 (Previously Presented): The apparatus of claim 2, wherein the top holder operates to detect the maximum level from voltage levels output from the optical output detector, and the automatic power controller operates to compare an output of the top holder with the first

reference voltage and to output a control value corresponding to a difference between the output and the first reference voltage to the laser diode driver.

Claim 4 (Previously Presented): The apparatus of claim 2, wherein the bottom holder operates to detect the minimum level from voltage levels output from the optical output detector, and the automatic modulation controller operates to compare an output of the bottom holder with the second reference voltage and to output a difference between the output and the second reference voltage to the laser diode driver.

Claim 5 (Previously Presented): The apparatus of claim 1, wherein the bottom holder operates to detect the minimum level from voltage levels output from the optical output detector; and the automatic modulation controller operates to compare an output of the bottom holder with the second reference voltage and to output a difference between the output and the second reference voltage to the laser diode driver.

Claim 6 (Previously Presented): The apparatus of claim 1, wherein the top holder operates to detect the maximum level from voltage levels output from the optical output detector; and the automatic power controller operates to compare an output of the top holder with the first reference voltage and to output a control value corresponding to a difference between the output and the first reference voltage to the laser diode driver.

Claim 7 (Previously Presented): An optical transmitter for converting data to be transmitted into an optical signal and transmitting the optical signal, the optical transmitter comprising:

a laser diode which outputs an optical signal according to a predetermined drive current;

an optical output detector which detects an optical power output from the laser diode and converts the optical power into a voltage;

a bias current controller which detects a maximum level of the voltage and outputs a first control value corresponding to a difference between the maximum

level and a first reference voltage, the bias current controller consists of a top holder and an automatic power controller;

a modulation current controller which detects a minimum level of the voltage and outputs a second control value corresponding to a difference between the minimum level and a second reference voltage, the modulation current controller consists of a bottom holder and an automatic modulation controller; and

a laser diode driver which receives the first and second control values as control signals and the data, generates currents according to the control signals and the data, and outputs the currents to the laser diode as the drive current.

Claim 8 (Original): The optical transmitter of claim 7, wherein the optical output detector comprises:

an optical/electric signal converter which converts the optical power output from the laser diode into a current;

a trans-impedance amplifier which inverts an output of the optical/electric signal converter; and

a resister which is in parallel connected to the trans-impedance amplifier and converts the current into a voltage.

Claim 9 (Previously Presented): The optical transmitter of claim 8, wherein the top holder operates to detect the maximum level from voltage levels output from the optical output detector, and the automatic power controller operates to compare an output of the top holder with the first reference voltage and to output a control value corresponding to a difference between the output and the first reference voltage as the first control value to the laser diode driver.

Claim 10 (Previously Presented): The optical transmitter of claim 8, wherein the bottom holder operates to detect the minimum level from the voltage levels output from the optical power detector, and the automatic modulation controller operates to compare an output of the bottom holder with the second reference voltage and to output a difference between the output and the second reference voltage as the second control value to the laser diode driver.

Claim 11 (Previously Presented): The optical transmitter of claim 7, wherein the bottom holder operates to detect the minimum level from the voltage levels output from the optical power detector; and the automatic modulation controller operates to compare an output of the bottom holder with the second reference voltage and to output a difference between the output and the second reference voltage as the second control value to the laser diode driver.

Claim 12 (Previously Presented): The optical transmitter of claim 7, wherein the top holder operates to detect the maximum level from voltage levels output from the optical output detector, and the automatic power controller operates to compare an output of the top holder with the first reference voltage and to output a control value corresponding to a difference between the output and the first reference voltage as the first control value to the laser diode driver.